

AMENDMENT TO THE CLAIMS

Claims 1-17 (cancelled)

18. (currently amended) A method for determining cable resistance of wiring of an electrical system of a vehicle which includes a battery, a load, and a first cable connecting a first side of the battery to a first side of the load; and a second cable connecting a second side of the battery to a second side of the load, comprising:

coupling a first Kelvin connector to the first side of the load of the vehicle;

coupling a second Kelvin connector to the second side of the load of the vehicle;

coupling a voltage sensor to the first side of the battery of the vehicle;

measuring a first parameter of the electrical system between the first Kelvin connection to the electrical system and the second Kelvin connection to the electrical system;

measuring a second parameter of the electrical system between the voltage sensor connected to the electrical system and the second Kelvin connection to the electrical system; and

determining the cable resistance of wiring of the electrical system between the second Kelvin connection and the first side of the battery as a function of the first parameter and the second parameter.

19. (previously presented) The method of claim 18 including:
measuring a third parameter between the voltage sensor connection to the electrical system and a fourth connection to the electrical system;

measuring a fourth parameter of the electrical system between the voltage sensor connection and the second Kelvin connection; and
determining a fifth parameter of the electrical system as a function of the third and the fourth parameters.

20. (original) The method of claim 18 wherein the first and second parameters comprise dynamic parameters.

21. (original) The method of claim 18 including applying a forcing function and wherein the first and second parameters are measured in response to the forcing function.

22. (original) The method of claim 21 wherein the forcing function comprises an active forcing function.

23. (original) The method of claim 21 wherein the forcing function comprises a passive forcing function.

24. (original) The method of claim 18 including applying Kelvin connectors configured to couple to the electrical system.

25. (cancelled)

26. (cancelled)

27. (previously presented) The method of claim 18 wherein the cable resistance is determined in accordance with the equation:

$$R_1 = F[P(C,D'), P(C',D')]$$

Where C, C' and D' are points on the electrical system.

28. (original) The method of claim 27 including applying a forcing function between the C point on the electrical system and a D point on the electrical system.

29. (original) The method of claim 18 wherein the first and second parameters are indicative of a cold cranking amps (CCA) measurement.

30. (previously presented) The method of claim 18 including providing an output related to the cable resistance parameter.

31. (original) The method of claim 30 wherein the output is provided to an operator.

32. (original) The method of claim 30 wherein the output is provided to electrical circuitry.

33. (original) The method of claim 30 wherein the output comprises a pass/fail output.

34. (original) The method of claim 30 wherein the output is indicative of a voltage drop for a particular current through the electrical system.

35. (cancelled)

36. (previously presented) An apparatus for determining cable resistance of wiring of an electrical system of a vehicle which includes a battery, a load, and a first cable connecting a first side of the battery to a first side of the load; and a second cable connecting a second side of the battery to a second side of the load, comprising:

a first Kelvin connector to couple the first side of the load;
a second Kelvin connector to couple the second side of the load;
a voltage sensor to couple the first side of the battery;
measurement circuitry configured to measure a first parameter of the electrical system between the first Kelvin connection to the electrical system and the second Kelvin connection to the electrical system, measure a second parameter of the electrical system between the voltage sensor connected to the electrical system and the second Kelvin connection to the electrical system; and responsively determine the cable resistance of wiring of the electrical system between the second Kelvin connection and the first side of the battery as a function of the first parameter and the second parameter.

37. (previously presented) The apparatus of claim 36:
wherein the measurement circuitry is further configured to:
measure a fourth parameter between a third electrical connection to the electrical system and a fourth connection to the electrical system;
measure a fifth parameter of the electrical system between the third electrical connection and the second electrical connection; and
determine a second cable resistance of the electrical system as a function of the fourth and the fifth parameters.

38. (previously presented) The apparatus of claim 36 wherein the first and second parameters comprise dynamic parameters.

39. (previously presented) The apparatus of claim 36 wherein the first and second parameters are measured in response to a forcing function.

40. (previously presented) The apparatus of claim 39 wherein the forcing function comprises an active forcing function.

41. (previously presented) The apparatus of claim 39 wherein the forcing function comprises a passive forcing function.

42. (previously presented) The apparatus of claim 36 wherein the cable resistance is determined in accordance with the equation:

$$R_1 = F[P(C,D'), P(C',D')]$$

Where C, C' and D' are points on the electrical system.

43. (previously presented) The apparatus of claim 42 including a forcing function applied between the C point on the electrical system and a D point on the electrical system.

44. (previously presented) The apparatus of claim 36 wherein the first and second parameters are indicative of a cold cranking amps (CCA) measurement.

45. (previously presented) The apparatus of claim 36 including an output configured to provide an output related to the cable resistance.

46. (previously presented) The apparatus of claim 45 wherein the output comprises an output to an operator.

47. (previously presented) The apparatus of claim 45 wherein the output comprises an output to electrical circuitry.

48. (previously presented) The apparatus of claim 45 wherein the output comprises a pass/fail output.

49. (previously presented) The apparatus of claim 45 wherein the output is indicative of a voltage drop for a particular current through the electrical system.